

Appl. No. 10/560,483
Amdt. Dated May 29, 2007
Reply to Office Action of February 26, 2007

REMARKS

Claims 1 to 18 are currently pending in the present application. Claims 9 to 14 and 17 are withdrawn. Claims 1 and 15 are amended herein. No new matter is added by the amendments to the claims.

The drawings are objected to under 37 C.F.R. 1.83(a) for failing to show every feature of the invention specified in the claims. Specifically the “wherein said conductive fibers come in contact electrically when said woven fibers are in a relaxed mode” as recited in Claim 9 has been objected to for failing to show that the fibers (22, 24) are in contact and, therefore, constitute a switch. It is submitted that Fig. 2a was intended to illustrate woven fibers in a relaxed mode, thereby facilitating the connection of conductive fibers (22, 24) to form a switch. As described in the specification on page 6, lines 12 to 21:

Referring to Figure 2a, in a relaxed state, the conductive fibers 22 and 24 make contact with each other physically and electrically, thus closing a circuit. Referring to Figure 2b, when the fabric structure 20 is stretched or pushed, the conductive connections between the conductive fibers 22 and 24 split from each other, and hence the circuit is open. Accordingly, a user can readily engage the opening and closing of a circuit defined by the two conductive fibers 22 and 24 or an ancillary device by merely stretching or pushing the fabric layers.

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Fig. 2a has been amended to more clearly illustrate that the woven fibers are in a relaxed mode, thereby facilitating the connection of conductive fibers (22, 24) to form a switch. No new matter has been added by the amendment to Fig. 2a. A corrected drawing sheet in compliance with 37 C.F.R. 1.121(d) is submitted herewith. The corrected drawing sheet is labeled "Replacement Sheet" pursuant to 37 C.F.R. 1.121(d).

The Action points out that the specification lacks some of the suggested section headings. Applicants respectfully decline to add additional section headings, as they are not required in accordance with MPEP §608.01(a).

Claims 1 to 3, 5 to 7, 15, 16 and 18 stand rejected by the Action under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,352,149 to Gartland (hereinafter "Gartland"). Applicants respectfully submit that Gartland does not expressly or inherently disclose all of the elements set forth in independent claims 1, 15 and 18. Thus, Gartland does not anticipate claims 1, 15 and 18 or the claims which depend therefrom.

It is an object of the present invention to provide a fabric switch system intended to permit the connection of an electronic device or power source. More specifically, the present invention relates to a stretchable fabric switch system that may be incorporated into a garment, furniture, or in a location most conveniently accessible to the user to serve as a coupling of electrical signals or power.

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The present invention thus discloses stretchable electro-conductive fabrics, which include an inner cord comprising at least two conductive cords releasably connected in series and a non-conductive cord enclosing the inner cord. The non-conductive cord is stretchable when pulled to release the contact between the two conductive cords that are in contact electrically, thus opening a circuit. This "pull to break" action can operate a simple electronic functionality and can be manufactured using conventional textile manufacturing processes. Accordingly, claim 1 claims a fabric switch comprising: an inner cord including at least two conductive cords releasably connected in linear series; and a non-conductive cord enclosing said inner cord, wherein said non-conductive cord is stretchable to release the contact between said at least two conductive cords electrically.

Gartland relates to conveyor belts having electrical conductors, which are sensor loops embedded therein, and more particularly to belts having signal inverting type sensor loops. Gartland discloses a section of a springwire conductor 712 formed into a microcoil springwire 701 which is employed as a sensor to detect rips in a conveyor belt. Gartland fails to disclose an inner cord including at least two conductive cords, as claimed in claim 1. An important feature of Gartland relates to the manner in which the conductors cross over (or through) each other as shown in FIG. 4, which illustrates the cross-through of the conductor portions 401, 402 of the sensors. As illustrated in Fig. 4 of Gartland, reference numeral 401 indicates one portion of a sensor loop conductor 712 made of a microcoil springwire 701, and reference numeral 402 indicates another portion of the same sensor loop conductor having another microcoil springwire 701, the second springwire crossing through the first springwire to form a conductor. Gartland does not

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have an analogous feature for the inner cord of claim 1. The Action states that segments of cord 712 may be taken as cords, however, as clearly illustrated in Fig. 4, the conductor of Gartland discloses two separate and conjoined coiled springwires. These springwires are separate and integral pieces, joined to form a conductor. Gartland does not show an inner cord including at least two conductive cords, as is claimed in claim 1. That is, the springwires of Gartland are not sections of an inner cord. Gartland further fails to disclose an inner cord including at least two conductive cords releasably connected in linear series. As clearly illustrated in Figs. 1a and 1b of the subject application, inner cord 12 is formed from a series of conductive cords 12 a, 12 b, which are releasably connected in linear series. Referring again to Fig. 4 of Gartland, microcoil springwires 701 are separate and integral pieces that are connected by angular crossings.

Independent claim 15 claims a method for permitting a person to activate a switch, said method comprising the steps of: providing an inner cord(12) including at least two conductive cords(12a-12n) releasably connected in linear series and a non-conductive cord (14) enclosing said inner cord; mounting both said inner cord (12) and said non-conductive cords 14) to a garment or furniture; and, stretching said non-conductive cord (14) to release the contact between said at least two conductive cords(12a-12n) and is patentable over Gartland for at least the reasons discussed with respect to claim 1.

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Independent claim 18 is directed to a fabric switch comprising: at least two conductive fibers operatively associated with at least one non-conductive fiber so as to form an electrical circuit, wherein the conductive fibers connect when the at least one non-conductive fiber is in a first mode and disconnect when such fiber is in a second mode. As conceded by the Action, Gartland fails to disclose a fabric switch. Gartland also fails to disclose at least two conductive fibers operatively associated with at least one non-conductive fiber so as to form an electrical circuit, wherein the conductive fibers connect when the at least one non-conductive fiber is in a first mode and disconnect when such fiber is in a second mode.

Dependent claims 2 to 3, 5 to 7 and 16 depend from claims 1 and 15 and provide further features, thus claims 2 to 3, 5 to 7 and 16 are clearly distinguishable over Gartland for at least the reasons discussed. Accordingly, the Applicants respectfully request that the rejections under 35 U.S.C. § 102(e) of claims 1 to 3, 5 to 7, 15, 16 and 18 be withdrawn.

Claims 9 to 13 and 17 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,796,578 to White. Claims 9 to 13 and 17 are currently withdrawn. Accordingly, the rejection thereof has not been addressed.

Claims 4 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Gartland. Applicants respectfully submit that claims 4 and 8, depending from claim 1 are

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patentable over Gartland because Gartland fails to teach or suggest all the claim limitations of claim 1, as discussed. Specifically, Gartland fails to disclose an inner cord including at least two conductive cords releasably connected in linear series. As clearly illustrated in Figs. 1a and 1b of the subject application, inner cord 12 is formed from a series of conductive cords 12 a, 12 b, which are releasably connected in linear series. Referring again to Fig. 4 of Gartland, the microcoil springwires 701 are separate and integral pieces that are connected by angular crossings. Claim 4 further claims that the inner cord(12) is coupled to a fabric circuit integrated in a garment. Claim 8 further claims that the inner cord(12) is coupled to a fabric circuit integrated in furniture. The Action states that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the switch in a car seat fabric, so as to indicate the condition of the fabric in presence of a driver or passenger". Applicants respectfully claim that neither claim 4 nor 8 addresses a car seat fabric.

Claim 14 stands rejected under 35 U.S.C. 103(a) as being anticipated by White. Claim 14 currently withdrawn. Accordingly, the rejection thereof has not been addressed.

Allowance of claims 1 to 8, 15, 16 and 18 is earnestly solicited.

Conclusion

In view of the foregoing, Applicants respectfully submit that the specification, the drawings and all claims presented in this application are currently in condition for

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allowance. Accordingly, Applicants respectfully request favorable consideration and that this application be passed to allowance.

Should any changes to the claims and/or specification be deemed necessary to place the application in condition for allowance, the Examiner is respectfully requested to contact the undersigned to discuss the same.

Applicants' representative believes that this response is being filed in a timely manner. In the event that any extension and/or fee is required for the entry of this amendment the Commissioner is hereby authorized to charge said fee to Deposit Account No. 14-1270. An early and favorable action on the merits is earnestly solicited.

If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to call David Barnes, Esq., Intellectual Property Counsel, Philips North America Corporation at the number below.

Respectfully submitted,

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